

EXHIBIT C

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

ORACLE AMERICA, INC.

Plaintiff,

v.

GOOGLE INC.

Defendant.

Case No. CV 10-03561 WHA

**REPLY EXPERT REPORT OF ALAN PURDY
REGARDING COPYRIGHT**

**SUBMITTED ON BEHALF OF PLAINTIFF
ORACLE AMERICA, INC.**

Comparison of Oracle's JDK 5 Library Versus Android's Froyo Library: On Private Field Signatures

Alan Purdy
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P.O. Box 10666
Portland OR 97296
Tel: (503) 274-0784
Cell: (503) 784-5907

alan@jli.com

Introduction

1. My name is Alan Purdy. I am a Senior Forensic Software Analyst at Johnson-Laird, Inc. ("JLI"). My qualifications are set forth in my opening report dated July 29, 2011, and are incorporated herein by reference.
2. This Report represents my current opinions based upon the information that I have been supplied—cited herein—and certain analyses that I have been able to perform thus far. I reserve the right to supplement this Report with any additional information provided to me, or if I should be asked to perform additional analyses beyond that which is described below.

Background

3. Counsel for Oracle asked me to analyze similarities between the private fields defined in classes provided by Android's version 2.2.x (code-name "Froyo"¹ corresponding to API Level 8) libraries and the private fields defined in classes provided by Oracle's Java Standard Edition version 5 Development Kit ("JDK 5") libraries (Java 1.5.22 runtime). More specifically, I was asked to compare the private fields between the two libraries (Froyo and JDK 5) for those 458 classes (hereinafter "Shared Classes") shared by both libraries residing in the 37 packages asserted by Oracle (*see* my previous report, the "Asserted Packages" as shown in Appendix A below). For those Shared Classes, I was asked to tabulate the private fields that matched on name, the subset of those that also matched on type, then those that matched on whole signature (including the modifiers).

Analysis Methods

4. To perform the requested task, I wrote a Java-based program to extract private field information from both Oracle's JDK 5 libraries, and Google's Froyo libraries. More particularly, this program started from the list of 458 classes, loaded that class at runtime, then extracted its private field information. For example, after loading the class "java.util.Stack" the program used the reflection protocol to extract from that class the field name, its modifiers, and its type. After capturing that information I manually imported the field information from both JDK 5 and Froyo into a Microsoft Access database for further analysis.
5. After capturing all the necessary information, I then wrote a set of scripts ("queries") that for each class, compared its private field names, names and types, and finally, names, types, and modifiers. This document reports on the results of my findings.

Results of Analysis

6. The table below focuses on classes. The left-most column categorizes what is being counted in the other three columns (classes in the 37 packages and classes with private fields). The second column identifies the classes in each category for JDK 5. The third column identifies the classes in each category for Froyo. The right-most column identifies the count of classes in common (matching class names) in each category.

	JDK 5 Count	Froyo Count	Classes With Matching Names
Classes in 37 Packages	506	458	458
Classes with Private Fields	324	317	297

7. The table below drills down to details of the private fields. Appendix B lists the 384 private fields with matching names, types, and modifiers.

Private Field Metric	Total
Private Fields in JDK 5's Shared Classes	1831
Private Fields in Froyo's Shared Classes	1383
Private Fields with Matching Names	516
Private Fields with Matching Names and Types	490
Private Fields with Matching Signatures (Modifier, Name, and Type)	384

Analysis Anomalies

8. When using the reflection classes to extract the private field information, two distinct anomalies arose in the data, each detailed below.

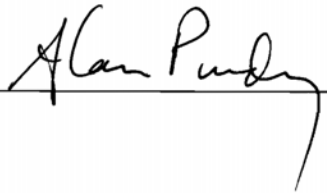
9. First, a Java class may define within it a "nested" class. For example, the class `GetField` is defined nested within the `java.io.ObjectInputStream` class. My prior analysis of the classes defined in the 37 Asserted Packages failed to distinguish nested classes from the parent enclosing class. A nested class is not independently loadable from its enclosing class. As a result, at runtime, when my java program tried to load the class from the Shared Classes list, the load failed, but was caught by my program and reported in its log. Both JDK 5 and Froyo failed to load the exact same 23 nested classes (*see* Appendix C below). The effect of not treating nested classes is to potentially undercount the private fields, and potentially undercount the matching private fields.

¹ See <http://developer.android.com/guide/appendix/api-levels.html>, visited 2011-08-18.

Analysis of Java API Comparing Oracle's JDK 5 vs. Android Froyo on Private Fields

10. Second, in Froyo, certain fields reported to exist in a loaded class returned a null when my java program requested selected details for that field. Therefore, while the program could get the name of the field (*see* Appendix D below), it could not get its type or signature. My analysis ignored these fields, again potentially undercounting the private fields, and the potentially matching private fields. Because of time constraints, I have not analyzed why accessing certain field information fails on Froyo.

Submitted on Augst 19, 2011, in Portland, Oregon.



Alan Purdy

Appendix A: Asserted Packages

Asserted Packages
java.awt.font
java.beans
java.io
java.lang
java.lang.annotation
java.lang.ref
java.lang.reflect
java.net
java.nio
java.nio.channels
java.nio.channels.spi
java.nio.charset
java.nio.charset.spi
java.security
java.security.acl
java.security.cert
java.security.interfaces
java.security.spec
java.sql
java.text
java.util
java.util.jar
java.util.logging
java.util.prefs
java.util.regex
java.util.zip
javax.crypto
javax.crypto.interfaces
javax.crypto.spec
javax.net
javax.net.ssl
javax.security.auth
javax.security.auth.callback

javax.security.auth.login
javax.security.auth.x500
javax.security.cert
javax.sql

Appendix B: Froyo & JDK 5 Private Fields with Matching Signatures

Class	Field Name
java.awt.font.NumericShaper	key
java.awt.font.NumericShaper	mask
java.beans.PropertyChangeSupport	source
java.beans.PropertyChangeSupport	propertyChangeSupportSerializedDataVersion
java.io.BufferedReader	in
java.io.BufferedWriter	out
java.io.File	path
java.io.File	serialVersionUID
java.io.FileInputStream	channel
java.io.FileOutputStream	channel
java.io.FilePermission	actions
java.io.FilePermission	serialVersionUID
java.io.LineNumberReader	lineNumber
java.io.LineNumberReader	markedLineNumber
java.io.ObjectInputStream	enableResolve
java.io.ObjectOutputStream	enableReplace
java.io.ObjectStreamClass	serialVersionUID
java.io.PrintStream	autoflush
java.io.PrintWriter	autoflush
java.io.RandomAccessFile	fd
java.io.RandomAccessFile	channel
java.io.SerializablePermission	actions
java.io.StringReader	str
java.io.StringWriter	buf
java.lang.Boolean	value
java.lang.Boolean	serialVersionUID
java.lang.Byte	value
java.lang.Byte	serialVersionUID
java.lang.Character	value
java.lang.Character	serialVersionUID
java.lang.Class	serialVersionUID
java.lang.ClassLoader	parent
java.lang.Double	value
java.lang.Double	serialVersionUID
java.lang.Enum	name
java.lang.Enum	ordinal
java.lang.Float	value
java.lang.Float	serialVersionUID
java.lang.Integer	value
java.lang.Integer	serialVersionUID

Class	Field Name
java.lang.Long	value
java.lang.Long	serialVersionUID
java.lang.Number	serialVersionUID
java.lang.Package	specTitle
java.lang.Package	specVersion
java.lang.Package	specVendor
java.lang.Package	implTitle
java.lang.Package	implVersion
java.lang.Package	implVendor
java.lang.Package	sealBase
java.lang.ProcessBuilder	directory
java.lang.ProcessBuilder	redirectErrorStream
java.lang.reflect.Field	slot
java.lang.reflect.Field	name
java.lang.reflect.Method	slot
java.lang.reflect.Method	name
java.lang.reflect.Proxy	serialVersionUID
java.lang.reflect.ReflectPermission	serialVersionUID
java.lang.RuntimePermission	serialVersionUID
java.lang.Short	value
java.lang.Short	serialVersionUID
java.lang.StackTraceElement	serialVersionUID
java.lang.String	value
java.lang.String	offset
java.lang.String	count
java.lang.String	serialVersionUID
java.lang.StringBuffer	serialPersistentFields
java.lang.Thread	contextClassLoader
java.lang.Throwable	serialVersionUID
java.lang.Throwable	detailMessage
java.lang.Throwable	cause
java.lang.Throwable	stackTrace
java.net.HttpURLConnection	followRedirects
java.net.Inet4Address	serialVersionUID
java.net.Inet6Address	serialVersionUID
java.net.InetAddress	serialVersionUID
java.net.InetSocketAddress	hostname
java.net.InetSocketAddress	addr
java.net.InetSocketAddress	port
java.net.InetSocketAddress	serialVersionUID
java.net.JarURLConnection	entryName
java.net.NetPermission	serialVersionUID
java.net.NetworkInterface	name
java.net.NetworkInterface	displayName
java.net.PasswordAuthentication	userName
java.net.PasswordAuthentication	password
java.net.Proxy	type
java.net.SocketPermission	serialVersionUID
java.net.SocketPermission	actions
java.net.URI	scheme
java.net.URI	fragment
java.net.URI	authority

Class	Field Name
java.net.URI	userinfo
java.net.URI	host
java.net.URI	port
java.net.URI	path
java.net.URI	query
java.net.URL	protocol
java.net.URL	host
java.net.URL	port
java.net.URL	file
java.net.URL	query
java.net.URL	authority
java.net.URL	path
java.net.URL	userInfo
java.net.URL	ref
java.net.URL	hashCode
java.net.URLConnection	defaultAllowUserInteraction
java.net.URLConnection	defaultUseCaches
java.net.URLConnection	connectTimeout
java.net.URLConnection	readTimeout
java.net.URLConnection	fileNameMap
java.nio.channels.FileLock	channel
java.nio.channels.FileLock	position
java.nio.channels.FileLock	size
java.nio.channels.FileLock	shared
java.nio.channels.SelectionKey	attachment
java.nio.channels.spi.AbstractSelectableChannel	provider
java.nio.channels.spi.SelectorProvider	provider
java.nio.charset.CoderResult	type
java.nio.charset.CoderResult	length
java.security.AlgorithmParameters	provider
java.security.AlgorithmParameters	algorithm
java.security.AlgorithmParameters	initialized
java.security.AllPermission	serialVersionUID
java.security.BasicPermission	serialVersionUID
java.security.cert.Certificate	serialVersionUID
java.security.cert.Certificate	type
java.security.cert.CertPath	serialVersionUID
java.security.cert.PKIXBuilderParameters	maxPathLength
java.security.cert.PKIXParameters	date
java.security.cert.PKIXParameters	sigProvider
java.security.cert.PKIXParameters	revocationEnabled
java.security.cert.PKIXParameters	explicitPolicyRequired
java.security.cert.PKIXParameters	policyMappingInhibited
java.security.cert.PKIXParameters	anyPolicyInhibited
java.security.cert.PKIXParameters	policyQualifiersRejected
java.security.cert.TrustAnchor	caName
java.security.cert.TrustAnchor	caPrincipal
java.security.cert.TrustAnchor	trustedCert
java.security.cert.X509Certificate	serialVersionUID
java.security.cert.X509CertSelector	serialNumber
java.security.cert.X509CertSelector	issuer
java.security.cert.X509CertSelector	subject

Class	Field Name
java.security.cert.X509CertSelector	certificateValid
java.security.cert.X509CertSelector	privateKeyValid
java.security.cert.X509CertSelector	keyUsage
java.security.cert.X509CRLSelector	minCRL
java.security.cert.X509CRLSelector	maxCRL
java.security.CodeSigner	serialVersionUID
java.security.CodeSigner	signerCertPath
java.security.CodeSigner	timestamp
java.security.CodeSource	serialVersionUID
java.security.CodeSource	location
java.security.CodeSource	signers
java.security.CodeSource	certs
java.security.CodeSource	sp
java.security.CodeSource	factory
java.security.GuardedObject	serialVersionUID
java.security.Identity	serialVersionUID
java.security.Identity	name
java.security.Identity	publicKey
java.security.IdentityScope	serialVersionUID
java.security.KeyFactory	provider
java.security.KeyPair	serialVersionUID
java.security.KeyRep	serialVersionUID
java.security.KeyRep	encoded
java.security.MessageDigest	algorithm
java.security.MessageDigest	provider
java.security.Permission	serialVersionUID
java.security.PermissionCollection	serialVersionUID
java.security.Permissions	serialVersionUID
java.security.Permissions	serialPersistentFields
java.security.ProtectionDomain	codeSource
java.security.ProtectionDomain	classLoader
java.security.ProtectionDomain	principals
java.security.ProtectionDomain	permissions
java.security.Provider	name
java.security.Provider	info
java.security.Provider	version
java.security.SecureRandom	provider
java.security.SecureRandom	secureRandomSpi
java.security.SecureRandom	algorithm
java.security.SecureRandom	state
java.security.SecureRandom	randomBytes
java.security.SecureRandom	randomBytesUsed
java.security.SecureRandom	counter
java.security.SecureRandomSpi	serialVersionUID
java.security.SecurityPermission	serialVersionUID
java.security.Signature	algorithm
java.security.SignedObject	serialVersionUID
java.security.SignedObject	content
java.security.SignedObject	signature
java.security.SignedObject	theAlgorithm
java.security.Signer	serialVersionUID
java.security.Signer	privateKey

Class	Field Name
java.security.spec.ECParameterSpec	curve
java.security.spec.EllipticCurve	field
java.security.spec.EllipticCurve	a
java.security.spec.EllipticCurve	b
java.security.spec.EllipticCurve	seed
java.security.spec.RSAMultiPrimePrivateCrtKeySpec	publicExponent
java.security.spec.RSAMultiPrimePrivateCrtKeySpec	primeP
java.security.spec.RSAMultiPrimePrivateCrtKeySpec	primeQ
java.security.spec.RSAMultiPrimePrivateCrtKeySpec	primeExponentP
java.security.spec.RSAMultiPrimePrivateCrtKeySpec	primeExponentQ
java.security.spec.RSAMultiPrimePrivateCrtKeySpec	crtCoefficient
java.security.spec.RSAMultiPrimePrivateCrtKeySpec	otherPrimeInfo
java.security.spec.RSAPrivateCrtKeySpec	publicExponent
java.security.spec.RSAPrivateCrtKeySpec	primeP
java.security.spec.RSAPrivateCrtKeySpec	primeQ
java.security.spec.RSAPrivateCrtKeySpec	primeExponentP
java.security.spec.RSAPrivateCrtKeySpec	primeExponentQ
java.security.spec.RSAPrivateCrtKeySpec	crtCoefficient
java.security.Timestamp	serialVersionUID
java.security.Timestamp	timestamp
java.security.Timestamp	signerCertPath
java.security.UnresolvedPermission	serialVersionUID
java.security.UnresolvedPermission	type
java.security.UnresolvedPermission	name
java.security.UnresolvedPermission	actions
java.sql.DriverManager	loginTimeout
java.sql.Timestamp	nanos
java.text.Annotation	value
java.text.ChoiceFormat	serialVersionUID
java.text.ChoiceFormat	choiceLimits
java.text.ChoiceFormat	choiceFormats
java.text.CollationKey	source
java.text.DateFormat	serialVersionUID
java.text.DecimalFormatSymbols	infinity
java.text.DecimalFormatSymbols	NaN
java.text.DecimalFormatSymbols	currencySymbol
java.text.DecimalFormatSymbols	intlCurrencySymbol
java.text.DecimalFormatSymbols	currency
java.text.Format	serialVersionUID
java.text.MessageFormat	serialVersionUID
java.text.MessageFormat	locale
java.text.MessageFormat	formats
java.text.MessageFormat	argumentNumbers
java.text.MessageFormat	maxOffset
java.text.NumberFormat	groupingUsed
java.text.NumberFormat	parseIntegerOnly
java.text.NumberFormat	maximumIntegerDigits
java.text.NumberFormat	minimumIntegerDigits
java.text.NumberFormat	maximumFractionDigits
java.text.NumberFormat	minimumFractionDigits
java.text.SimpleDateFormat	pattern
java.text.SimpleDateFormat	formatData

Class	Field Name
java.text.SimpleDateFormat	defaultCenturyStart
java.util.ArrayList	serialVersionUID
java.util.BitSet	bits
java.util.BitSet	serialVersionUID
java.util.Calendar	lenient
java.util.Calendar	zone
java.util.Calendar	firstDayOfWeek
java.util.Calendar	minimalDaysInFirstWeek
java.util.Currency	serialVersionUID
java.util.Currency	currencyCode
java.util.Date	serialVersionUID
java.util.EnumMap	serialVersionUID
java.util.EventListenerProxy	listener
java.util.EventObject	serialVersionUID
java.util.GregorianCalendar	gregorianCutover
java.util.HashMap	serialVersionUID
java.util.Hashtable	modCount
java.util.Hashtable	serialVersionUID
java.util.IdentityHashMap	serialVersionUID
java.util.LinkedHashMap	serialVersionUID
java.util.LinkedHashMap	accessOrder
java.util.LinkedHashSet	serialVersionUID
java.util.LinkedList	serialVersionUID
java.util.Locale	defaultLocale
java.util.logging.FileHandler	append
java.util.logging.FileHandler	limit
java.util.logging.FileHandler	count
java.util.logging.FileHandler	pattern
java.util.logging.FileHandler	files
java.util.logging.Handler	filter
java.util.logging.Handler	formatter
java.util.logging.Handler	encoding
java.util.logging.Level	name
java.util.logging.Level	value
java.util.logging.Level	resourceBundleName
java.util.logging.Level	serialVersionUID
java.util.logging.Logger	filter
java.util.logging.LoggingPermission	serialVersionUID
java.util.logging.LogManager	props
java.util.logging.LogRecord	level
java.util.logging.LogRecord	sequenceNumber
java.util.logging.LogRecord	sourceClassName
java.util.logging.LogRecord	sourceMethodName
java.util.logging.LogRecord	message
java.util.logging.LogRecord	threadID
java.util.logging.LogRecord	millis
java.util.logging.LogRecord	thrown
java.util.logging.LogRecord	loggerName
java.util.logging.LogRecord	resourceBundleName
java.util.logging.LogRecord	parameters
java.util.logging.LogRecord	resourceBundle
java.util.logging.LogRecord	serialVersionUID

Class	Field Name
java.util.logging.MemoryHandler	DEFAULT_SIZE
java.util.logging.MemoryHandler	size
java.util.logging.MemoryHandler	target
java.util.logging.MemoryHandler	buffer
java.util.logging.StreamHandler	writer
java.util.prefs.NodeChangeEvent	serialVersionUID
java.util.prefs.PreferenceChangeEvent	serialVersionUID
java.util.prefs.Preferences	factory
java.util.PriorityQueue	serialVersionUID
java.util.PriorityQueue	size
java.util.Properties	serialVersionUID
java.util.PropertyPermission	serialVersionUID
java.util.Random	multiplier
java.util.Random	nextNextGaussian
java.util.Random	haveNextNextGaussian
java.util.regex.Pattern	serialVersionUID
java.util.regex.Pattern	pattern
java.util.regex.Pattern	flags
java.util.ResourceBundle	locale
java.util.Scanner	matcher
java.util.Scanner	closed
java.util.Scanner	locale
java.util.SimpleTimeZone	startMonth
java.util.SimpleTimeZone	startDay
java.util.SimpleTimeZone	startDayOfWeek
java.util.SimpleTimeZone	startTime
java.util.SimpleTimeZone	endMonth
java.util.SimpleTimeZone	endDay
java.util.SimpleTimeZone	endDayOfWeek
java.util.SimpleTimeZone	endTime
java.util.SimpleTimeZone	startYear
java.util.SimpleTimeZone	rawOffset
java.util.SimpleTimeZone	useDaylight
java.util.SimpleTimeZone	startMode
java.util.SimpleTimeZone	endMode
java.util.SimpleTimeZone	dstSavings
java.util.SimpleTimeZone	DOM_MODE
java.util.SimpleTimeZone	DOW_IN_MONTH_MODE
java.util.SimpleTimeZone	DOW_GE_DOM_MODE
java.util.SimpleTimeZone	DOW_LE_DOM_MODE
java.util.Stack	serialVersionUID
java.util.StringTokenizer	delimiters
java.util.TimeZone	ID
java.util.TreeMap	serialVersionUID
java.util.TreeSet	serialVersionUID
java.util.UUID	serialVersionUID
java.util.UUID	version
java.util.UUID	variant
java.util.UUID	node
java.util.Vector	serialVersionUID
java.util.WeakHashMap	threshold
java.util.zip.Deflater	strategy

Class	Field Name
java.util.zip.Deflater	finished
java.util.zip.GZIPInputStream	FHCRC
java.util.zip.GZIPInputStream	FEXTRA
java.util.zip.GZIPInputStream	FNAME
java.util.zip.GZIPInputStream	FCOMMENT
java.util.zip.Inflater	finished
java.util.zip.ZipOutputStream	comment
javax.crypto.SealedObject	encryptedContent
javax.crypto.SealedObject	sealAlg
javax.crypto.SealedObject	paramsAlg
javax.crypto.spec.SecretKeySpec	serialVersionUID
javax.net.ssl.HandshakeCompletedEvent	serialVersionUID
javax.net.ssl.HandshakeCompletedEvent	session
javax.net.ssl.HttpURLConnection	defaultHostnameVerifier
javax.net.ssl.HttpURLConnection	defaultSSLSocketFactory
javax.net.ssl.HttpURLConnection	sslSocketFactory
javax.net.ssl.SSLEngineResult	status
javax.net.ssl.SSLEngineResult	handshakeStatus
javax.net.ssl.SSLEngineResult	bytesConsumed
javax.net.ssl.SSLEngineResult	bytesProduced
javax.net.ssl.SSLPermission	serialVersionUID
javax.net.ssl.SSLSessionBindingEvent	serialVersionUID
javax.security.auth.AuthPermission	serialVersionUID
javax.security.auth.callback.PasswordCallback	serialVersionUID
javax.security.auth.callback.PasswordCallback	prompt
javax.security.auth.callback.PasswordCallback	inputPassword
javax.security.auth.PrivateCredentialPermission	serialVersionUID
javax.security.auth.PrivateCredentialPermission	credentialClass
javax.security.auth.Subject	serialVersionUID
javax.security.auth.SubjectDomainCombiner	subject
javax.security.auth.x500.X500Principal	serialVersionUID
javax.sql.ConnectionEvent	ex

Appendix C: Nested Classes

Nested Classes
java.io.ObjectInputStream.GetField
java.io.ObjectOutputStream.PutField
java.lang.Character.Subset
java.lang.Character.UnicodeBlock
java.nio.channels.FileChannel.MapMode
java.nio.channels.Pipe.SinkChannel
java.nio.channels.Pipe.SourceChannel
java.security.KeyStore.Builder
java.security.KeyStore.CallbackHandlerProtection
java.security.KeyStore.PasswordProtection
java.security.KeyStore.PrivateKeyEntry
java.security.KeyStore.SecretKeyEntry
java.security.KeyStore.TrustedCertificateEntry
java.security.Provider.Service
java.security.cert.CertPath.CertPathRep
java.security.cert.Certificate.CertificateRep
java.text.AttributedCharacterIterator.Attribute
java.text.DateFormat.Field
java.text.Format.Field
java.text.MessageFormat.Field
java.text.NumberFormat.Field
java.util.jar.Attributes.Name
javax.crypto.spec.PSource.PSpecified

Appendix D: Froyo Fields Not Readable

Class Name	Unreadable Field
java.awt.font.TextAttribute	attrMap
java.beans.PropertyChangeSupport	allPropertiesChangeListeners
java.beans.PropertyChangeSupport	children
java.beans.PropertyChangeSupport	selectedPropertiesChangeListeners
java.io.ObjectStreamClass	resolvedClass
java.io.SequenceInputStream	e
java.lang.Class	cacheRef
java.lang.ClassLoader	packages
java.lang.ProcessBuilder	command
java.lang.ProcessBuilder	environment
java.lang.Runtime	shutdownHooks
java.lang.ThreadLocal	reference
java.lang.ref.ReferenceQueue	head
java.lang.reflect.Field	declaringClass
java.lang.reflect.Field	type
java.lang.reflect.Method	declaringClass
java.lang.reflect.Method	returnType
java.lang.reflect.Proxy	loaderCache
java.lang.reflect.Proxy	proxyCache
java.net.URL	streamHandlers
java.nio.channels.spi.AbstractSelectableChannel	keyList
java.nio.channels.spi.AbstractSelector	cancelledKeysSet
java.nio.charset.Charset	_builtInCharsets
java.nio.charset.Charset	aliasesSet
java.nio.charset.Charset	cachedCharsetTable
java.nio.charset.CoderResult	_malformedErrors
java.nio.charset.CoderResult	_unmappableErrors
java.security.AccessController	contexts
java.security.Identity	certificates
java.security.Provider	aliasTable
java.security.Provider	lastServicesSet
java.security.Provider	propertyAliasTable
java.security.Provider	propertyServiceTable

java.security.Provider	serviceTable
java.security.SecureClassLoader	pds
java.security.cert.CollectionCertStoreParameters	collection
java.security.cert.CollectionCertStoreParameters	defaultCollection
java.security.cert.PKIXParameters	certPathCheckers
java.security.cert.PKIXParameters	certStores
java.security.cert.PKIXParameters	initialPolicies
java.security.cert.PKIXParameters	trustAnchors
java.security.cert.X509CRLSelector	issuerNames
java.security.cert.X509CRLSelector	issuerPrincipals
java.sql.DriverManager	theDrivers
java.text.Collator	cache
java.util.Currency	codesToCurrencies
java.util.Currency	localesToCurrencies
java.util.EnumMap	entrySet
java.util.EnumMap	keyType
java.util.HashMap	entrySet
java.util.HashMap	keySet
java.util.HashMap	values
java.util.Hashtable	entrySet
java.util.Hashtable	keySet
java.util.Hashtable	values
java.util.PriorityQueue	comparator
java.util.ResourceBundle	cache
java.util.TreeMap	comparator
java.util.TreeSet	backingMap
java.util.WeakHashMap	referenceQueue
java.util.jar.Manifest	chunks
java.util.jar.Manifest	entries
java.util.logging.FileHandler	allLocks
java.util.logging.Level	levels
java.util.logging.LogManager	loggers
java.util.logging.LogRecord	currentThreadId
java.util.logging.Logger	handlers
java.util.prefs.AbstractPreferences	cachedNode
java.util.prefs.AbstractPreferences	events
java.util.prefs.AbstractPreferences	nodeChangeListeners
java.util.prefs.AbstractPreferences	preferenceChangeListeners

java.util.zip.ZipFile	mEntries
java.util.zip.ZipOutputStream	entries
javax.net.ssl.KeyStoreBuilderParameters	ksbuilders
javax.security.auth.Subject	principals
javax.security.auth.Subject	privateCredentials
javax.security.auth.Subject	publicCredentials
java.io.ObjectInputStream	PRIMITIVE_CLASSES
java.io.ObjectInputStream	objectsRead
java.io.ObjectOutputStream	objectsWritten
java.io.ObjectStreamClass	EXTERNALIZABLE
java.io.ObjectStreamClass	SERIALIZABLE
java.io.ObjectStreamClass	VOID_CLASS